Montana Fish, Wildlife & Parks

4600 Giant Springs Road
Great Falls, MT 59405

May 5, 2017

Dear Interested Party,

Montana Fish Wildlife and Parks (FWP) is proposing a native fish conservation project in the headwaters of Wegner Creek on lands administered by Montana Fish, Wildlife & Parks, Sieben Livestock and the Bureau of Land Management. The project would involve enhancing a natural rock slab in Wegner Creek by drilling, blasting and excavating a waterfall to prevent fish from moving upstream of that point. Native Rocky Mountain sculpin would be salvaged from the stream and held in a neighboring stream. Brook trout and rainbow trout would be removed from Wegner Creek upstream of the waterfall barrier using rotenone piscicide. Native Rocky Mountain sculpin would be restocked upstream of the waterfall barrier. Genetically pure native westslope cutthroat trout would be transferred from neighboring populations to develop a conservation population in 4.6 miles of Wegner Creek upstream of the waterfall barrier.

This EA is available for review in Great Falls at FWP's Headquarters. It also may be obtained from FWP at the address provided below, or viewed on FWP's internet website: http://www.fwp.mt.gov.

Montana Fish, Wildlife & Parks invites you to comment on the attached proposal. Public comment will be accepted until June 5, 2017 @ 5:00 pm. Comments should be sent to the following address or emailed to ggrisak@mt.gov.

Montana Fish, Wildlife & Parks
Wegner Creek Native Fish Conservation Project
4600 Giant springs Road
Great Falls, MT 59405

Sincerely,

Gary Bertellotti
FWP Region Four Supervisor

MONTANA FISH, WILDLIFE & PARKS

Environmental Assessment for Native Fish Conservation in Wegner Creek in the Missouri River Drainage

PART I: PROPOSED ACTION DESCRIPTION

A. Type of Proposed Action: The proposed action would maintain a population of native Rocky Mountain Sculpin and develop a population of native westslope cutthroat trout (WCT) in Wegner Creek. The project involves enhancing a natural rock slab in Wegner Creek to create a waterfall barrier so non-native fish cannot move upstream of that point. Rocky Mountain sculpin would be salvaged from upstream of the barrier site and held in a neighboring stream. Brook trout and rainbow trout upstream of the barrier would be removed with rotenone. Genetically pure adult westslope cutthroat trout from donor streams would be planted upstream of the barrier. Salvaged Rocky Mountain sculpin would be planted upstream of the barrier.

B. Agency Authority for the Proposed Action:

- FWP is authorized by Montana Code Annotated [MCA] §87-1-201(9)(a) to implement programs that manage sensitive fish species in a manner that assists in the maintenance or recovery of those species, and that prevents the need to list the species under § 87-5-107 MCA or the federal Endangered Species Act. Section 87-1-201(9)(a), M.C.A.

- FWP is a signatory to the Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout in Montana (FWP 1999, 2007) which states: "The management goal for WCT in Montana is to ensure the long-term, self sustaining persistence of the subspecies within each of the five major river drainages they historically inhabited in Montana, and to maintain genetic diversity and life history strategies represented by the remaining local populations."

- According to the FWP Statewide Fisheries Management Plan, the restoration goal for WCT east of the Continental Divide (Upper Missouri River Basin upstream from and including the Judith River) is to restore secure conservation populations of WCT to 20% of the historic distribution (FWP 2012). Populations of WCT are considered secure by FWP when they are isolated from non-native fishes, typically by a physical fish passage barrier, have a population size of at least 2,500 fish, and occupy sufficient (5 to 6 miles) habitat to assure long-term persistence. Currently WCT (including slightly hybridized population > 90% WCT) occupy approximately 8% of their historic habitat.

C. Estimated Commencement Date: Develop barrier in August 2017.
Fish removal in August 2018. Plant sculpin and WCT in September 2018.

D. Name and Location of the Project: Native Fish Conservation in Wegner Creek.

Wegner Creek is located in Cascade County. It is a tributary of the Missouri River and enters near the town of Craig. The barrier site is located approximately 10 miles southeast of the town of Craig, Montana; T15N, R2W Sec 36 (Figure 1). There would be 4.6 miles of stream isolated upstream of the proposed barrier site. Much of that stream is in T15 R1 and T14 R1.

E. Project Size (acres affected)

1. Developed/residential – 0 acres
2. Industrial – 0 acres
3. Open space/Woodlands/Recreation – 0 acres
4. Wetlands/Riparian –The area of the existing rock slab that would be enhanced to create a barrier is 485 ft^2. The amount of Wegner Creek and tributaries included in the proposed action is approximately 4.6 miles.
5. Floodplain – 0 acres
6. Irrigated Cropland – 0 acres
7. Dry Cropland – 0 acres
8. Forestry – 0 acres
9. Rangeland – 0 acres

F. Narrative Summary of the Proposed Action and Purpose of the Proposed Action

The cutthroat trout is Montana's state fish. Westslope cutthroat trout *Oncorhynchus clarkii lewisi* (WCT) were first described by the Lewis and Clark Expedition in 1805 near Great Falls, Montana, and are recognized as one of 14 interior subspecies of cutthroat trout. The historical range of WCT includes Idaho, Montana, Washington, Wyoming, and Alberta, Canada. In Montana, WCT occupy the Upper Missouri and Saskatchewan River drainages east of the Continental Divide, and the Upper Columbia Basin west of the Divide. Although still widespread, WCT distribution and abundance in Montana has declined significantly in the past 100 years due to a variety of causes including introductions of nonnative fish, habitat degradation, and over-exploitation (Hanzel 1959, Liknes 1984, McIntyre and Rieman 1995, Shepard et al. 1997, Shepard et al. 2003). Reduced distribution of WCT is particularly evident in the Missouri River drainage where genetically pure WCT persist in less than 5% of the habitat they once occupied, and most remaining populations are restricted to isolated headwater habitats (Shepard et al. 2003; Shepard et al. 2005). Further, many of the remaining populations are at risk of extirpation due to small population size and the threats of competition, predation and hybridization with non-native trout species.

The declining status of WCT has lead to its designation as a *Species of Special Concern* by the State of Montana, a *Sensitive Species* by the U.S. Forest Service (USFS), and a *Special Status Species* by the Bureau of Land Management (BLM). In addition, in 1997 a petition was submitted to the U.S. Fish and Wildlife Service (USFWS) to list WCT as "threatened" under the *Endangered Species Act* (ESA). USFWS status reviews have found that WCT are "not warranted" for ESA listing (DOI 2003); however, this finding was in litigation until 2008 and additional efforts to list WCT under ESA are possible.

To advance range-wide WCT conservation efforts in Montana, a Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout in Montana was developed in 1999

by several federal and state resource agencies (including the BLM, Montana Fish, Wildlife & Parks [FWP], the USFS, and Yellowstone National Park [YNP]), non-governmental conservation and industry organizations, tribes, resource users, and private landowners (FWP 1999: MOU). The MOU outlined goals and objectives for WCT conservation in Montana, which if met, would significantly reduce the need for special status designations and listing of WCT under the ESA. The MOU was revised and endorsed by signatories in 2007 (FWP 2007). As outlined in these MOU's, *the primary management goal for WCT in Montana is to ensure the long-term self-sustaining persistence of the subspecies in its historical range*. This goal can be achieved by maintaining, protecting, and enhancing all designated WCT "conservation" populations, by reintroducing WCT to habitats where they have been extirpated and by developing new conservation populations.

In FWP's Region 4 in central Montana there are 64 populations of westslope cutthroat trout. In the past 15 years, 24 of these have been developed by conservation action programs that include transferring wild fish into fishless streams, securing fish upstream of migration barriers and removing non-native species and replacing with WCT. In the immediate vicinity of Wegner Creek, there are three WCT populations that are the result of similar conservation programs. Tyrell Creek, Cottonwood Creek and Elkhorn Creek have protective barriers with WCT upstream. These are local populations that maintain genetic diversity of the species and may perpetuate adaptive traits that are important to the species (Leary et al. 1998). Wegner Creek would be used as a refuge for genetically pure fish that could be moved from other streams to preserve their genetic diversity. Projects to stabilize and increase WCT populations will help prevent listing WCT under the Endangered Species Act.

The goal of this project is to develop a conservation population of WCT and to maintain the existing population of Rocky Mountain sculpin in 4.6 miles of Wegner Creek. To fulfill this goal, we would create a waterfall barrier in Wegner Creek to that prevents fish from moving upstream of the barrier. Brook trout, rainbow trout and RM sculpin upstream of the barrier would be removed (Figure 2, Figure 3). WCT would be stocked in the stream above the barrier which would reduce the risk of hybridization with rainbow trout and competition with brook trout. RM sculpin presently in the stream would also be conserved. To create a fish barrier we would drill, blast and hammer an existing rock slab located in the stream channel to create a waterfall that is impassable to fish moving upstream. Engineered specifications from man-made fish passage barriers in the neighboring Cottonwood Creek and Elkhorn Creek show 5.3 to 6.3 feet of vertical drop can prevent fish passage. The Cottonwood Creek barrier has a vertical drop of 6.3 feet with an additional 4 foot intermediate splash apron. The Cottonwood drainage is 3.9 times larger than Wegner Creek at the respective barrier sites (12,500 acres and 3,200 acres, respectively) (Figure 4). The barrier on neighboring Elkhorn Creek has a vertical drop of 5.3 feet with a sloped splash apron of 6% (1 ft drop over 16 ft) (Figure 4). The Elkhorn drainage is 4.1 times larger than Wegner Creek at the respective barrier sites (13,200 acres and 3,200 acres, respectively).The goal for the Wegner Creek project is to create a barrier with 5-6 feet of vertical drop and no splash pool at the base. Elevations measured at the site indicate 5 feet of vertical drop is likely attainable. The site could be further enhanced after blasting to ensure a minimum of 5 feet of drop is met. This could be done by shaping the channel downstream of the barrier to create a slightly higher gradient and prevent a splash pool from forming at the base of the waterfall. A small concrete lip could be poured on the top of the vertical edge to increase drop approximately

12 inches. This would also provide a level uniform flow of water over the top of the waterfall barrier.

After the barrier is complete approximately 500 Rocky Mountain sculpin would be collected using electrofishing and held in a cage in a neighboring stream.

The remaining fish upstream of the barrier would be killed using CFT Legumine 5% rotenone applied at a concentration of 1 part formulation to 1 million parts of water. There would be two 8 hour applications using drip cans spaced on 2 hour flow time intervals to achieve 1ppm Legumine in the stream over that period of time. The rotenone would remain active in the stream less than 24 hours. The rotenone would be neutralized using potassium permanganate applied immediately downstream of the fish barrier. Free flowing powdered potassium permanganate would be administered using an auger system at achieve 20 minutes of contact with rotenone. Neutralizing rotenone at the fish barrier ensures only the target fish are removed and would prevent fish further downstream in Wegner Creek from being affected by the rotenone applied upstream of the fish barrier. Flow estimates range between 1.5 and 3 cfs based on observed base flow and visual high water mark evidence. The stream would be gaged over the course of 2017 to determine the actual range of flows. Up to date flow measurements would be collected immediately before the application of rotenone to ensure appropriate concentrations are applied to fulfil the objectives of the project.

Once the fish upstream of the barrier are dead Wegner Creek would be restocked with RM sculpin. Genetically pure adult WCT from one or more streams would be transferred to Wegner Creek upstream of the barrier. In each case, no more than 100 live fish from any one stream would be moved at a time to found the new population. If capturing and moving live fish from a donor stream proves to be difficult for unforeseen reasons, it may be necessary to move fertilized eggs from those streams and rear them in Wegner Creek using remote site incubators (RSI). Moving live fish or fertilized eggs from the donor streams may occur multiple times to ensure the Wegner Creek population is established while not causing depletion impacts to donor populations. All fish or egg transfers would be conducted following FWP policy on transferring wild fish as approved by the Fish Transport Committee and Department Fish Health Program.

Monitoring would include surveys of aquatic insects and fish to determine if natural reproduction is occurring with RM sculpin and WCT.

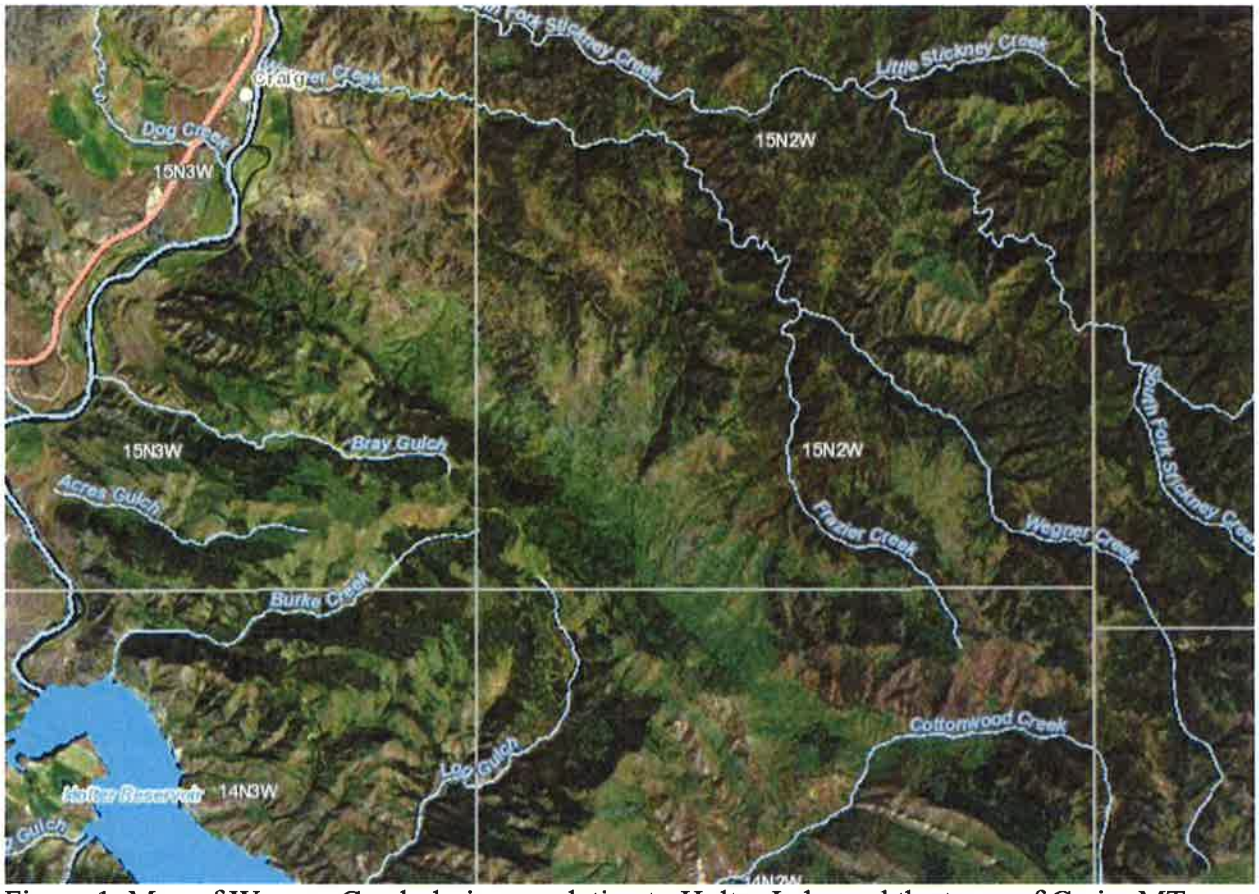

Figure 1. Map of Wegner Creek drainage relative to Holter Lake and the town of Craig, MT.

Figure 2. Proposed barrier site on Wegner Creek near Craig, Montana. Red area represents rock proposed to be removed by blasting and hammering to create a vertical drop of 5-6 feet.

Figure 3. Proposed barrier site on Wegner Creek near Craig, Montana. Red area represents rock proposed to be removed by blasting or hammering to create a vertical drop of 5-6 feet.

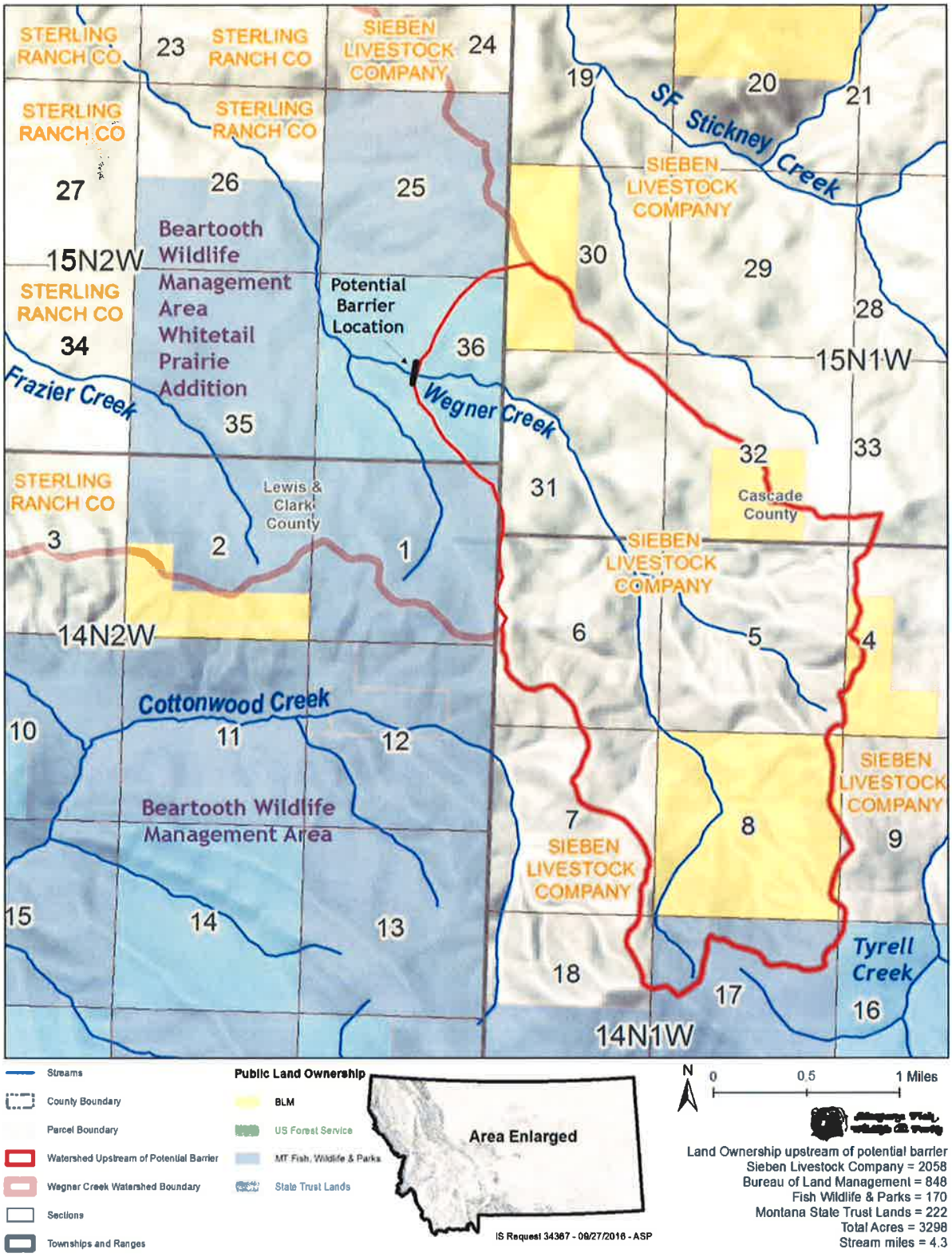

Figure 4. Map of upper Wegner Creek drainage within red polygon showing acreage by land ownership and proposed barrier location. An unnamed tributary enters the stream 0.2 mile downstream of the proposed barrier site.

Review of Rotenone Application

Rotenone is a pesticide (piscicide) used to kill fish. It does not impact terrestrial plants and animals and has few impacts to non-target aquatic life at the concentration used to kill fish. FWP has a long history of using rotenone to manage fish populations in Montana that spans as far back as 1948. The department has administered rotenone projects for a variety of reasons, but principally to improve angling quality and for native fish conservation. Rotenone is a naturally occurring substance derived from the roots of tropical plants in the bean family including the jewel vine (*Derris* spp.) and lacepod (*Lonchocarpus* spp.). These plants are found in Australia, southern Asia, and South America. Rotenone has been used by native people for centuries to capture fish for food in areas where these plants are naturally found. It has been used in fisheries management in North America since the 1930s.

Rotenone acts by inhibiting oxygen transfer at the cellular level. It is especially effective on fish at low concentrations because it is readily absorbed into the fish's bloodstream through the thin cell layer of the gills. Mammals, birds and other non-gill breathing organisms do not have this rapid absorption route into the bloodstream. The most common route of exposure to non-gill breathing animals is through ingestion. Rotenone is readily broken down by digestive processes and is not well absorbed through the digestive system. Thus, terrestrial animals can tolerate exposure to rotenone at concentrations much higher than those used to kill fish.

The product label for CFT Legumine brand of rotenone recommends using 1 part CFT Legumine formulation (which contains 5% rotenone) to 1 million parts water (1ppm) in streams. In streams where fresh water enters through springs or small seep tributaries, it is a common practice to use powdered rotenone (Prentox 7% rotenone) to prevent fish from seeking these areas as freshwater refuges during the application. The mainstem of Wegner Creek and its larger tributary would be treated using drip stations which are containers that administer diluted CFT Legumine to the stream to create a constant concentration of 1 ppm in the stream water for 8 hours. Backwaters, spring areas and small tributaries would be treated using backpack sprayers according to the CFT Legumine label specifications. The total amount of Legumine that would be applied to the stream is unknown because the amount is dependent on the flow rate of the stream at the time of application and the length of stream the rotenone would remain active. The actual amount of Legumine that would be applied to the stream would be determined by an on-site bioassay a few weeks before the application. In the example of a typical stream flowing at 1.5 cfs and if it has 1.5 miles of stream channel to be treated and the rotenone remains active for 0.75 miles (requiring 2 drip stations), then 1.2 liters of CFT Legumine would be required to treat the 1.5 miles of stream. For Wegner Creek and its tributaries we estimate about 3 gallons of CFT Legumine may be used to achieve the goals of the project. Precise amounts would be calculated prior to the application. At fish killing concentrations the rotenone in the Legumine would be present in the stream for only 24-48 hr after application. After that time the Legumine would likely have naturally detoxified and diluted to below fish killing concentrations.

To prevent the CFT Legumine from traveling downstream of the defined treatment area, potassium permanganate would be used to neutralize rotenone in the stream below the fish barrier site. The CFT Legumine label states that 15-30 min of contact time between rotenone and potassium permanganate is necessary to fully detoxify the rotenone. Because the rotenone is

not instantly detoxified upon contact with potassium permanganate, a detoxification zone would be established that roughly corresponds to 30 minutes of flow time/distance. The detoxification zone is defined as the distance the stream travels in 30 minutes downstream of the fish barrier as determined by a stream dye test. A small unnamed tributary enters Wegner Creek from the south approximately 275 yards downstream of the barrier site. Fresh water from this tributary would dilute the rotenone. Flow measurements would be made prior to the application to determine how much dilution would be available by this freshwater source. Both dilution from fresh water and the application of potassium permanganate in the detoxification zone would aid in the rapid breakdown of the rotenone to non-toxic levels. Potassium permanganate is readily oxidized by natural processes in the stream channel. It is necessary to have an adequate amount of potassium permanganate in the stream to account for natural oxidation and the oxidation with rotenone. An additional 2 ppm residual potassium permanganate is applied to ensure the rotenone detoxification occurs. On-site assays are used to determine the amount of potassium permanganate necessary for natural oxidation of the stream channel, rotenone oxidation and residual. Stream discharge would be measured prior to detoxification and the potassium permanganate would be applied at the rate specified on the CFT Legumine label (3-5 ppm) and adjusted based on on-site testing results. Neutralization would commence according the FWP Rotenone Detoxification Policy which states that detoxification with potassium permanganate will begin no less than 2 hours before the theoretical arrival time of treated waters at the detoxification station. A chlorine meter would be used at the end of the detoxification zone to ensure adequate oxidation potential (0.5-1.0 ppm $KMnO_4$) is present after 30 min of contact time to completely neutralize the rotenone. Caged fish captured on site would be placed at the lower end of the detoxification zone and used to measure when the detoxification occurs. Distress or survival in caged fish would indicate whether or not the detoxification station is effectively neutralizing the CFT Legumine. The CFT Legumine label states that if sentinel fish in treated stream water show no signs of distress within 4 hours, the stream water is considered no longer toxic, and detoxification can be discontinued. Neutralization would continue until the theoretical time in which all treated waters have passed the fish barrier and when sentinel fish can survive for an additional 4 hours. This would likely occur within 24-48 hr after rotenone application.

The fish that die from the rotenone treatment in the stream would be left on-site in the water. Studies in Washington State indicate that approximately 70% of rotenone-killed fish sink and do not float (Bradbury 1986) and decompose within a week or two. Dead fish stimulate plankton and other invertebrate growth and aid in invertebrate recovery following treatment.

If all the trout are not removed during the first treatment, it would be necessary to implement a second treatment to achieve the desired objective of complete removal of non-native fish. A second application may be conducted within a few days of the first application. An electrofishing survey would be conducted to determine if all the fish have been completely removed. If electrofishing confirms the presence of live trout, another application would be conducted.

To prevent the public from being exposed to rotenone-treated waters public access would be closed during the treatment and neighboring access roads would be signed with recommended closures. Public roads and other access points (i.e., trailheads) would be signed during the stream treatment. Additional signs would be placed at public stream crossings informing the public of the presence of treated waters and to keep out.

PART II. ALTERNATIVE

Alternative 1 – No action

The no action alternative would allow status quo management to continue. Non-native trout and Rocky Mountain sculpin in Wegner Creek would remain the same. The "No Action" alternative would not contribute to the State's obligation to conserve native fish species and take action to prevent their listing as Threatened or Endangered under the Endangered Species Act. The No Action alternative would have the fewest impacts to the stream habitat. Although angling is very limited in Wegner Creek, the No Action Alternative would maintain the existing fishery and provide uninterrupted opportunities for angling. The objectives of the project would not be met.

Alternative 2 – Proposed Action: Develop a fish passage barrier on Wegner Creek, salvage Rocky Mountain sculpin upstream of the barrier, remove non-native trout upstream of the barrier, restock upstream of the barrier with Rocky Mountain sculpin and genetically pure westslope cutthroat trout.

A natural rock slab in the streambed would be drilled, blasted, hammered and excavated to create a 5 foot tall waterfall that acts as an upstream migration barrier to fish. A small concrete lip would be poured on the top portion of the waterfall, if necessary, to provide uniform flow and increase the height of the waterfall. Rocky Mountain sculpin would be salvaged and held in a neighboring stream of downstream of the treatment area in Wegner Creek. CFT Legumine rotenone would be applied to Wegner Creek upstream of the barrier to kill non-native trout. The rotenone would be detoxified within ¼ mile downstream of the fish migration barrier using potassium permanganate. After the non-native trout are completely removed upstream of the barrier, Rocky Mountain sculpin and genetically pure westslope cutthroat trout would be restocked upstream of the barrier. This alternative offers the highest probability of achieving the goals of conserving native fish species. The proposed action would create approximately 4.6 miles of habitat for Rocky Mountain sculpin and westslope cutthroat trout that is secure from invasion and hybridization by non-native fishes. The fish from this stream could be used for future conservation programs.

Alternative 3 –Mechanically remove non-native trout from Wegner Creek.

This alternative would involve removal of non-native trout from Wegner Creek using electrofishing, netting and trapping rather than rotenone to remove fish. Multiple-pass electrofishing has been used to eradicate nonnative trout from several small streams in northcentral Montana (Big Coulee, Middle Fork Little Belt, and Cottonwood creeks) and in SW Montana (Muskrat, Whites and Staubach creeks). Electrofishing can be an effective means of capturing fish in streams; however, electrofishing has limitations. Generally, electrofishing has been only 50 -70% efficient at capturing fish depending on the type of habitat and fish size distribution. Electrofishing is inefficient at capturing juvenile fish and generally electrofishing removal efforts require multiple years to allow juvenile fish to grow to the size where they can be captured. Electrofishing is also very labor intensive. The project reaches where electrofishing removals have been successful were generally less than 3 miles in length and required up to 25 electrofishing removal passes over several years to eradicate the unwanted

species. Each electrofishing pass generally requires a crew of 3 to 9 people. Eradication of trout from Wegner Creek with electrofishing would be possible because the habitat is not as complex as other streams where this method was tried. But it would require a frequent and prolonged effort, as described above, on private land. In some cases this method has not achieved its objectives. Electrofishing removal efforts in McVey Creek near the town of Wisdom in the early 1990's and again from 2005-2007 were not successful at achieving a significant reduction in brook trout numbers in the stream. To achieve complete removal of trout from Wegner Creek with electrofishing it would require a 4-5 year commitment, with 3-4 crews (6-10 people) for a minimum of 2-4 weeks each year. Such an effort would be impractical and cost prohibitive. Further, it is uncertain whether 100% removal of trout could be achieved. Although Alternative 3 is less likely to accomplish the goals of native fish conservation in Wegner Creek, it would not have the potential negative impacts of the proposed action such as short term impacts to aquatic invertebrates. Alternative 3 would also have a greater impact by taking the longest time to completely remove non-native trout before native fish could be restocked. Netting and trapping could be employed in conjunction with electrofishing but these methods would contribute to removing only a small number of trout because the creek does not have pools deep enough to completely deploy traps and nets. Plus, fish in streams are typically localized and do not move long distances, except for spawning season, for most of the year. As such nets and traps would not intercept moving trout for most of the year. Traps and nets and be selective for larger sized fish because the smaller fish are not trapped or captured in the net mesh. For these reasons this alternative was eliminated from further consideration.

Alternative 4: Use angling to eliminate hybridized trout from Wegner Creek.

FWP has the authority, under commission rule, to modify angling regulations for the purpose of removing unwanted fish from a lake or stream. Unfortunately, this method would not likely result in complete fish removal or even trout suppression for a number of reasons. First, the stream is small and likely currently receives little fishing pressure. Second, a large portion of the stream is located on private land which limits public access. Next, attracting anglers to the stream to harvest small trout would be very difficult because the site is very remote and requires hiking or riding a horse long distances to reach the site. The small size of the stream and small size of fish are not attractive to most anglers. Recreational angling has been shown to reduce the average size of fish and reduce population abundance, but rarely if ever has it been solely responsible for eliminating a fish population. Using angling techniques alone in the stream would not result in removal of hybridized trout and would not achieve the objective of conserving native fish. For these reasons this method of fish removal was considered unreliable at achieving the objective of complete fish removal and was eliminated from further analysis.

PART III. ENVIRONMENTAL REVIEW

A. PHYSICAL ENVIRONMENT

1. LAND RESOURCES Will the proposed action result in:	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Soil instability or changes in geologic substructure?			X			1a.

b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?		X				
c. Destruction, covering or modification of any unique geologic or physical features?		X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		X				
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				

Comment 1a. The project is designed to modify an existing rock slab in the stream channel by drilling and blasting a vertical wall that resembles a waterfall in the stream and serves to block fish migration upstream of that point. Class 1-2 rip rap produced from the blast would be repurposed and placed along the west bank upstream of the waterfall to prevent the stream from migrating laterally around the rock slab. Overburden from the blasting would be repurposed to fill an existing void on the east bank and downstream of the waterfall site. This site is not in the stream channel and repurposing the material at this site would not influence stream flow.

2. WATER **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?			X		Yes	2a
b. Changes in drainage patterns or the rate and amount of surface runoff?		X				
c. Alteration of the course or magnitude of flood water or other flows?			X			2c.
d. Changes in the amount of surface water in any water body or creation of a new water body?		X				
e. Exposure of people or property to water related hazards such as flooding?		X				
f. Changes in the quality of groundwater?		X				2f
g. Changes in the quantity of groundwater?		X				
h. Increase in risk of contamination of surface or groundwater?			X		Yes	2a,f,h

i. Effects on any existing water right or reservation?		X				2i
j. Effects on other water users as a result of any alteration in surface or groundwater quality?			X		Yes	2j
k. Effects on other users as a result of any alteration in surface or groundwater quantity?			X		Yes	2k
l. Will the project affect a designated floodplain?		X				
m. Will the project result in any discharge that will affect federal or state water quality regulations? (Also see 2a)			X		Yes	2m

Comment 2a: The proposed project is designed to intentionally introduce a pesticide to surface water to remove fish. The impacts would be short term and minor. CFT Legumine (5% rotenone) is an EPA registered pesticide and is safe to use for removal of unwanted fish, when handled and applied according to the product label. The concentration of rotenone proposed for use is 1 part formulation to one million parts of water (ppm).

To reduce the impact of the piscicide on water quality, a detoxification station would be established immediately downstream of the fish barrier. There are three ways in which rotenone can be detoxified once applied. The most common method is to allow natural breakdown to occur. Rotenone is a compound that is susceptible to natural breakdown (detoxification) through a variety of mechanisms such as water chemistry, water temperature, exposure to organic substances, exposure to air, and sunlight intensity (Ware 2002; ODFW 2002; Loeb and Engsrtom-Heg 1970; Engstrom-Heg 1972; Gilderhus et al. 1986). Rotenone persistence studies by Gilderhus et al. (1986) and Dawson et al. (1991) found that in cool water temperatures of 32 to 46°F the half-life ranged from 3.5 to 5.2 days. Gilderhus et al. (1986) reported that 30% mortality was experienced in rainbow trout exposed to degrading concentrations of actual rotenone (0.004 ppm) in 46°F pond water 14 days after a treatment. By day 18 the concentrations were sub lethal to trout. The second method for detoxification involves basic dilution by fresh water. This may be accomplished by fresh ground water or surface water flowing into a lake or stream. The final method of detoxification involves the application of an oxidizing agent like potassium permanganate. This dry crystalline substance is mixed with stream or lake water to produce a concentration of liquid sufficient to detoxify the rotenone. Detoxification is accomplished after about 15-30 minutes of exposure time between the two compounds (Prentiss Inc. 1998, 2007). At the fish barrier, potassium permanganate would be used to detoxify rotenone and prevent fish killing concentrations of rotenone from traveling more than ¼ mile downstream.

Dead fish would result from this project. Bradbury (1986) reported that 9 of 11 water bodies in Washington treated with rotenone experienced an algae bloom shortly after treatment. This is attributed to the input of phosphorus to the water from decaying fish. Bradbury further notes that approximately 70% of the phosphorus content of the fish stock would be released into the water through bacterial decay. This action may be beneficial because it would stimulate algae

production and would contribute to the production of aquatic insects. Any changes or impacts to water quality resulting from decaying fish would be short term and minor.

Comment 2c. The project is designed to alter flow at the barrier site by creating a vertical drop of about 5 feet that prevents fish from moving upstream of this point. The risks of this could include creating a scour pool at the bottom of the waterfall. If the rock feature at the base of the waterfall is not sufficient to prevent scouring, some of the overburden from the blast would be repurposed to armor the base of the waterfall.

Comment 2f: No contamination of groundwater is anticipated to result from this project. Rotenone binds readily to sediments, and is broken down by soil and in water (Skaar 2001; Engstrom-Heg 1971, 1976; Ware 2002). Rotenone moves only one inch in most soil types; the only exception would be sandy soils where movement is about three inches (Hisata 2002). In California, studies where wells were placed in aquifers adjacent to and downstream of rotenone applications did not detect rotenone, rotenolone, or any of the other organic compounds in the formulated products (CDFG 1994). Case studies in Montana have concluded that rotenone movement through groundwater does not occur. For example, at Tetrault Lake, Montana neither rotenone nor inert ingredients were detected in a nearby domestic well, which was sampled two and four weeks after applying 90 ppb rotenone to the lake. This well was chosen because it was down gradient from the lake and also drew water from the same aquifer that fed and drained the lake. In 1998, a Kalispell-area pond was treated with Prenfish 5% rotenone. Water from a well, located 65 feet from the pond, was analyzed and no evidence of rotenone was detected. In 2001, another Kalispell-area pond was treated with Prenfish 5% rotenone. Water from a well located 200 feet from that pond was tested four times over a 21 day period and showed no sign of rotenone. In 2005, FWP treated a small pond near Thompson Falls with Prenfish to remove pumpkinseeds and bass. A well located 30 yards from the pond was tested and neither Prenfish nor inert ingredients were found in the well. At Soda Butte Creek near Cooke City, Montana a well at a Forest Service campground located 50 ft from a treated stream was tested immediately following and 10 months after treatment with Prenfish and no traces of rotenone were found (Olsen 2006). Because rotenone is known to bind readily with stream and lake substrates, FWP does not anticipate any contamination of ground water as a result of this project.

Comment 2h: See comment 2a, f. Blasting would be conducted using a nitroglycerin based explosive such as Powerpro. The Powerpro MSDS sheet lists 96 h LC 50 values for bluegill in flow through tests of 0.87 – 3.35 mg/L and in 48h LC 50 flow tests with daphnia values were 46-55 mg/L (Orica 2015). By comparison 96h LC50 values for the active ingredient rotenone (not formulation) for bluegill ranges 6.15-7.65 mg/L (Marking and bills 1976). Nitroglycerin residue in the environment is typically low due to its near complete detonation in this form of explosive. To ensure complete detonation a galvanometer would be used to check for connections before and after blasting. If incomplete detonation occurs the blaster could track down the unexploded ordinance and detonate it, thus removing the chance of residue from unexploded ordinance leaching into the water.

Comment 2i, 2j, 2k:
The CFT Legumine label states "…Do not use water treated with rotenone to irrigate crops or release within 1/2 mile upstream of a potable water or irrigation water intake in a standing body

of water such as a lake, pond or reservoir…" There are no irrigation diversions located within the proposed treatment area. Sieben Livestock holds stock water rights directly from the stream throughout most of the treatment area in sections 6, 8, 31. Livestock would be precluded from the area during the treatment. Discussions with Sieben Livestock personnel in April 2017 revealed cattle will be in the Wegner Creek drainage in 2017, but not in 2018, as part of a rotational grazing management strategy. As such, livestock would not be exposed to roteneon-treated water. The next closest water right is held by Sterling Ranch for livestock watering directly from the stream 3.6 miles downstream from the treatment zone. At this location, the water would have been detoxified with potassium permanganate, neutralized by organic demand of the stream and diluted from the unnamed tributary in section 36 and by Frazer Creek. Any rotenone treated waters would be fully neutralized. Discussions with Sterling Ranch personnel in April 2017, indicated the ranch was agreeable to the neutralization and distance assurances between the project area and the livestock watering location 3.6 miles downstream. Additional measures could be employed to temporarily move cattle out of this pasture, or provide a temporary alternative water source during the rotenone treatment.

Right ID	Purpose	Owner	Distance from treatment zone
41QJ 205360 00	Livestock	Sieben Livestock	W/in treatment zone sec 6, 8, 31
41QJ 28004 00	Livestock	Gruel/Blackman	10.5 miles
41QJ 30017610	Instream flow	MFWP	Entire reach
41QJ 36140 00	Livestock	Sterling Ranch	Sec 15&9 - 3.6 miles
41QJ 97498-00	Irrigation	Sterling Ranch	Sec 12 - 9.0 miles
41QJ 97503 00	Livestock	Sterling Ranch	Sec 7,11,12 – 8.0 miles
41QJ 28004 00	livestock	Brenda Gruel	10.8 miles

Comment 2m: During the barrier construction, there would be a short term increase in turbidity in the stream from drilling, blasting and operating equipment. Application would be made for a Montana DEQ 318 permit to temporarily suspend the surface water quality standards language at this site for construction purposes.

FWP would submit a Notice of Intent for the purpose of applying a pesticide to a stream from Montana DEQ under the Pesticide General Permit.

Cumulative Impacts: The proposed action of barrier development and piscicide treatment would have a short term impact on water quality (turbidity and piscicides) in Wegner Creek. The short term nature of the construction project would lessen impacts to water quality, complete detonation of Powerpro explosives and saferguard measures of checking for detonation connections with a galvanometer would ensure no nitroglycerin reside remains. The timing of the barrier construction portion and the rotenone application nearly one year apart would reduce cumulative impacts. Because of the rapid breakdown rate of CFT Legumine and active neutralization at the fish barrier, these impacts would attenuate through time and would not impact long-term water quality or the productivity of fisheries resources after restocking. FWP does not expect the proposed actions to result in other actions that would create cumulative impacts to water resources in the stream nor does FWP foresee any other activities in the basin that would add to impacts of the proposed action. As such there are no cumulative impacts to water resources related to the barrier construction or the rotenone treatment.

3. AIR Will the proposed action result in:	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Emission of air pollutants or deterioration of ambient air quality? (also see 13 (c))			X			3a
b. Creation of objectionable odors?			X			3b
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				
e. Will the project result in any discharge which will conflict with federal or state air quality regs?		X				

Comment 3a and 3b: In contrast to other forms of explosives such as ammonium nitrate fuel oil is nitroglycerin explosives do not produce solid forms of carbon such as soot or smoke once the material is detonated. For these reasons nitroglycerin is used commonly in smokeless gun powders. When detonated, the gasses dissipate rapidly. The carbon based components do not leave residue in the air. The risk of human exposure to combustion products is low, because the work is performed outside, the gasses dissipate rapidly and humans are kept out of the blast area.

Diesel exhaust would be emitted from equipment used to create the barrier. Emissions would attenuate quickly and not result in impacts to the environment.

A 2000 watt gasoline generator would be used to operate a potassium permanganate auger during the detoxification process. Emissions from this generator would dissipate rapidly. Impacts from gasoline and diesel engine emissions would be short term and minor.

CFT Legumine has less petroleum hydrocarbon solvents such as toluene, xylene, benzene and naphthalene than other formulations of rotenone. By comparison, Prenfish has a strong chemical odor after application as opposed to CFT Legumine which is virtually odor-free and performs nearly identically to Prenfish.

Cumulative Impacts: Impacts to air quality from the proposed actions would be short term and minor. The construction project and rotenone treatment would be separated by nearly one year. FWP does not expect the proposed action to result in other actions that would create cumulative impacts to air quality at Wegner Creek. FWP does not foresee any other activities in the basin that would add to impacts of the proposed action. As such there are no cumulative impacts to air quality related to treatment of the stream with piscicides or associated barrier construction.

4. VEGETATION	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be	Comment Index

Will the proposed action result in:					Mitigated	
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?			X			4a
b. Alteration of a plant community?		X				
c. Adverse effects on any unique, rare, threatened, or endangered species?		X				4c
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?			X			4e
f. Will the project affect wetlands, or prime and unique farmland?		X				

Comment 4a: There would be some disturbance of vegetation along the stream during the barrier construction and the rotenone treatment due to construction equipment and foot and ATV traffic. These impacts should be minimal because the stream has historic trail or roads that provide foot and/or vehicular access to the site. FWP anticipates any impacts to plants resulting from trampling would be unnoticeable within 1 growing season. The barrier construction and rotenone application would be separated by nearly one year. Rotenone does not affect plants at concentrations used to kill fish. Vegetation disturbances are expected to be short term and minor.

Comment 4c: There are no plant Species of Concern listed by the Montana Heritatge program in the Wegner Creek drainage. Rotenone has no impacts on aquatic or terrestrial plant species at fish killing concentrations. Some trampling would occur from the movement and use of construction equipment and due to increase foot traffic along the stream; however, these impacts should be minimal because of the localized nature of the construction project and the stream has existing trails or roads that provide good foot and/or vehicular access to the sites.

Comment 4e: Machinery and equipment used during the project may inadvertently carry noxious weeds to the project site. Proposed mitigation includes washing all equipment and vehicles before entry onto the project site and removal of mud, dirt, and plant parts from project equipment before moving into project area. Subsequent weed monitoring and removal may be performed if warranted.

Cumulative Impacts: Impacts to vegetation from the proposed action would be short term and minor. FWP does not expect the proposed action to result in other actions that would create cumulative impacts to vegetation in the proposed native fish restoration stream. It is very unlikely that the WCT fisheries would attract significant interest and associated higher use levels. FWP does not foresee any other activities in the basins proposed for native fish restoration that would add to impacts of the proposed action. As such there are no cumulative impacts to vegetation related to the proposed action.

5. FISH/WILDLIFE Will the proposed action result in:	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Deterioration of critical fish or wildlife habitat?		X				
b. Changes in the diversity or abundance of game animals or bird species?			X		yes	5b,e
c. Changes in the diversity or abundance of nongame species?			X		yes	5c
d. Introduction of new species into an area?			X			5d
e. Creation of a barrier to the migration or movement of animals?				X	No	5e,b
f. Adverse effects on any unique, rare, threatened, or endangered species?			X			5f
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?			X			5g
h. Will the project be performed in any area in which T&E species are present, and will the project affect any T&E species or their habitat? (Also see 5f)		X				
i. Will the project introduce or export any species not presently or historically occurring in the receiving location? (Also see 5d)			X			5i, d

Comment 5b and e: This project is designed to limit the distribution of non-native trout upstream of the barrier site and to remove these species from upstream the barrier. Therefore, there would be no net loss of habitat occupied by self-sustaining populations of wild game fish. The change would be in the species composition. There would be no proposed changes in the fishing regulations as a result of this project. When applied at fish killing concentration rotenone has no impact on terrestrial wildlife including birds and mammals that consume dead fish or treated water.

Comment 5c: Non-game non-target species that could be impacted include some aquatic insects and potentially larval stages of amphibians. Columbia spotted frogs and western toads have been documented in the area. Metamorphosed amphibians that breathe air are not affected by rotenone at fish killing concentrations; however, non-metamorphosed tadpoles that respire through their skin and/or gills are affected. The timing of the project should mitigate any impacts to spotted frogs and western toads because most would have metamorphosed by late summer when the rotenone treatments are proposed. Neither of these species have been observed at Wegner Creek. Rocky Mountain sculpin occur in the project are but are considered part of the

conservation project. Some of these fish would be removed during the rotenone treatment, but they would also be restocked in the stream above the barrier as part of the conservation project. s

Aquatic Invertebrates:

Numerous studies indicate that rotenone has temporary or minimal effects on aquatic invertebrates. The most noted impacts are temporary and often substantial reduction in invertebrate abundance and diversity. In a study of the impacts of a rotenone treatment in Soda Butte Creek in south-central Montana, aquatic invertebrates of nearly all taxa declined dramatically immediately post rotenone treatment; however, only one year later nearly all taxa were fully recovered and at greater abundance than pre treatment (Olsen and Frazer 2006). One study reported that no long-term significant reduction in aquatic invertebrates was observed due to the effects of rotenone, which was applied at levels twice as high as the levels proposed for this project (Houf and Campbell 1977). Some have reported delayed recovery of taxa richness (number of taxa present) following rotenone treatments, but many of these treatments were at higher concentrations than proposed in this treatment (Mangum and Madrigal 1999). Finlayson et al. (2010) summarized high concentrations of rotenone (>100 ppb) and treatments exceeding 8 hours, typically resulted in severe impacts to invertebrate richness and abundance. Conversely, lower rotenone concentrations (<50 ppb) and treatments less than 8 hours, resulted in less impact to invertebrate assemblages. Chandler and Marking (1982) found that clams and snails were between 50 and 150 times more tolerant than fish to Noxfish (5% rotenone formulation). In all cases, the reduction of aquatic invertebrates was temporary, and most treatments used a higher concentration of rotenone than proposed for these projects (Schnick 1974). In a study on the relative tolerance of different aquatic invertebrates to rotenone, Engstrom-Heg et al. (1978) reported that the long-term impacts of rotenone are mitigated because those insects that were most sensitive to rotenone also tended to have the highest rate of recolonization. Temporary changes in aquatic invertebrate community structure due to a rotenone treatment could be similar to what is observed after natural (e.g. fire) and anthropogenic (livestock grazing) disturbances (Wohl and Carline 1996; Mihuc and Minshall. 2005; Minshall 2003), though the physical impacts and resulting modifications of invertebrate assemblages after these types disturbances can last for a much longer period than a piscicide treatment.

Because of their short life cycles (Anderson and Wallace 1984), good dispersal ability (Pennack 1989), and generally high reproductive potential (Anderson and Wallace 1984), aquatic invertebrates are capable of rapid recovery from disturbance (Boulton et al. 1992; Matthaei et al. 1996). Portions of the proposed WCT restoration stream that do not hold fish would not be treated with rotenone and would provide a source of aquatic invertebrate colonists that could drift downstream. Recolonization would include aerially dispersing invertebrates from downstream areas (e.g. mayflies, caddisflies, dipterans, stoneflies).

The possibility of eliminating a rare or endangered species of aquatic invertebrate in the stream by treating with rotenone in the formulation of CFT Legumine is very unlikely. Montana Natural Heritage lists no species of concern or potential species of concern of aquatic invertebrates in the stream. FWP expects that the stream contains the same type of aquatic invertebrate assemblages found in other nearby stream and the possibility of eliminating a rare or endangered species is minimal.

Based on the results of other rotenone projects in Montana, FWP would expect the aquatic invertebrate species composition and abundance to return to pre-treatment diversity and abundance within one to two years after treatment. Therefore, the impacts to aquatic invertebrate communities should be short-term and minor.

Birds and Mammals:

According to the Natural Heritage Program, the project area is not habitat for any species of special concern.

Mammals are generally not affected by rotenone at fish killing concentrations because they neutralize rotenone by enzymatic action in their stomach and intestines (AFS 2002). Studies of risk for terrestrial animals found that a 22 pound dog would have to drink 7,915 gallons of treated lake water within 24 hours, or eat 660,000 pounds of rotenone-killed fish, to receive a lethal dose (CDFG 1994). The State of Washington reported that a half pound mammal would need to consume 12.5 mg of pure rotenone to receive a lethal dose (Bradbury 1986). Considering the only conceivable way an animal can consume rotenone under field conditions is by drinking lake or stream water or consuming dead fish, a half pound animal would need to drink 16 gallons of water treated at 1 ppm to receive a lethal dose of rotenone.

The EPA (2007) made the following conclusion for small mammals and large mammals;

> *When estimating daily food intake, an intermediate-sized 350 g mammal will consume about 18.8 g of food. Using data previously cited from the common carp with a body weight of 88 grams, a small mammal would only consume 21% (18.8/88) of the total carp body mass. According to the data for common carp, total body residues of rotenone in carp amounted to 1.08 µg/g. A 350-g mammal consuming 18.8 grams represents an equivalent dose of 20.3 µg of rotenone; this value is well below the median lethal dose of rotenone (13,800 µg) for similarly sized mammals. When assessing a large mammal, 1000 g is considered to be a default body weight. A 1,000 g mammal will consume about 34 g of food. If the animal fed exclusively on carp killed by rotenone, the equivalent dose would be 34 g *1.08 µg/g or 37 µg of rotenone. This value is below the estimated median lethal equivalent concentration adjusted for body weight (30,400 µg). Although fish are often collected and buried to the extent possible following a rotenone treatment, even if fish were available for consumption by mammals scavenging along the shoreline for dead or dying fish, it is unlikely that piscivorous mammals will consume enough fish to result in observable acute toxicity.*

Similar results determined that birds required levels of rotenone at least 1,000 to 10,000-times greater than is required for lethality in fish (Skaar 2001). Cutkomp (1943) reported that chickens, pheasants and members of lower orders of *Galliformes* were quite resistant to rotenone, and four day old chicks were more resistant than adults. Ware (2002) reports that swine are uniquely sensitive to rotenone and it is slightly toxic to wildfowl, but to kill Japanese quail required 4,500 to 7,000 times more than is used to kill fish.

The EPA (2007) made the following conclusion for birds;

> *Since rotenone is applied directly to water, there is little likelihood that terrestrial forage items for birds will contain rotenone residues from this use. While it is possible that some piscivorous birds may feed opportunistically on dead or dying fish located on the surface of treated waters, protocols for piscicidal use typically recommend that dead fish be collected and buried, rendering the fish less available for consumption (see Section IV). In addition, many of the dead fish will sink and not be available for consumption by birds. However, whole body residues in fish killed with rotenone ranged from 0.22 µg/g in yellow perch (Perca flavescens) to 1.08 µg/g in common carp (Cyprinus carpio; Jarvinen and Ankley 1998). For a 68 g yellow perch and an 88 g carp, this represents totals of 15 µg and 95 µg rotenone per fish, respectively. Based on the avian subacute dietary LC_{50} of 4,110 mg/kg, a 1,000-g bird would have to consume 274,000 perch or 43,000 small carp. Thus, it is unlikely that piscivorous birds will consume enough fish to result in a lethal dose.*

Amphibians and Reptiles:

Amphibians and reptiles would not be impacted by the development of a barrier in the stream.

Potential amphibians and reptiles found within the proposed treatment areas include: spotted frogs (*Rana pretiosa*), western toads *(Bufo boreas)* (amphibians), and western terrestrial garter (*Thamnophis elegans*), common garter (*T. sirtalis*) and rubber boa (*Charina bottae*) snakes (reptiles), Gophersnake *Pituophis catenifer*) and Prairie Rattlesnake (*Crotalus viridis.* Rotenone can be toxic to gill-breathing larval amphibians, though air breathing adults are less sensitive. Chandler and Marking (1982) found that Southern Leopard frog tadpoles were between 3 and 10 times more tolerant than fish to Noxfish (5% rotenone formulation). Grisak et al. (2007) conducted laboratory studies on long-toed salamanders, Rocky Mountain tailed frogs (*Ascaphus truei*), and Columbia spotted frogs and concluded that the adults of these species would not suffer an acute response to Prenfish at trout killing concentrations (0.5-1 ppm) but the larvae would likely be affected. These authors recommended implementing rotenone treatments at times when the larvae are not present, such as the fall, to reduce the chance of exposure to rotenone treated water and potential impacts to larval amphibians. Wegner Creek would be treated in August or September, which would reduce but not eliminate potential impacts to larval amphibians. Any reduction in amphibian abundance would be expected to be short term because of the low sensitivity of adults to rotenone, and because most larval amphibians, with the exception of tailed frogs would have metamorphosed by August, when the treatments are planned. Impacts to juvenile tailed frogs can be mitigated by capturing as many as possible and holding them in non-treated waters then releasing them back to the stream once the treatment is complete. Further, adult frogs would not be affected by the stream treatment and could lay eggs in the stream the following year. A reduced abundance of aquatic invertebrates may temporally impact larval and adult amphibians that prey on these species, though the aquatic invertebrate community would recover rapidly. Reptiles (air-breathing) would not be directly impacted by rotenone treatment. Some snakes are known to consume fish from streams; therefore, there could be temporary reduction in available food as a result of the piscicide treatments, but no reptiles present are known to be fish obligates.

Based on this information FWP would expect the impacts to non-target organisms the stream proposed for WCT restoration to range from non-existent to short term and minor.

Commend 5d and 5i. WCT are not present in Wegner Creek, but this stream is within the historic range of the species. The project would involve introducing this species into Wegner Creek as part of a conservation program. The environmental impacts of having WCT in Wegner Creek versus brook trout or rainbow trout are nearly identical. The environmental benefits of having WCT in Wegner Creek versus brook trout or rainbow trout is a sensitive native trout would occupy 4.6 miles of habitat and maintain a self sustaining population that is valuable for conservation purposes.

Comment 5e. See comment 5b.

Comment 5f:

Terrestrial Organisms:

It is possible that osprey, eagles or other birds would eat rotenone-killed fish. Bald eagles have been observed along the nearby Missouri River. Conducting this project in the fall would not impact bald eagle nesting, and there would be no impacts to birds that consume rotenone-killed fish. See comment 5c for impacts to birds.

The project area is within potential black bear habitat. This project should have little or no impact on black bears because black bears generally are not dependent on fish for food. Despite being scavengers for food, at the time of the rotenone treatment, bears would likely be using choke cherries for food which are very abundant in the neighboring Cottonwood, Tyrrell and Elkhorn drainages. There would be no impact on bears that consume fish killed by rotenone or consume treated waters (See comment 5c for impacts to mammals). The project would not have an impact on black bears other than potential short term displacement due to increased people presence along the stream.

Aquatic organisms:

Comment 5g. There is the potential for displacement of some animals during the implementation of this project (see Comment 5f). Mule deer, elk, other big game species and species mentioned above (Comment 5f) may be temporarily displaced as crews are present in the drainage to develop the barrier and implement the rotenone treatment. However, these impacts should only be minor and temporary. The total treatment should be completed within 2-3 days. Motorized vehicles and foot access is currently present throughout most of the drainage proposed for WCT restoration and public access is present on public lands. The presence of workers to implement these projects would likely represent only a small and temporary increase in human activity.

Comment 5i. See comment 5d.

Cumulative Impacts: Impacts to fish and wildlife from the proposed action would be short term and minor. FWP does not expect the proposed action to result in other actions that would create cumulative impacts to fish and wildlife resources within the stream. The barrier construction and rotenone treatment are connected actions but cumulative impacts would be mitigated by separating the actions by nearly one year. The success of the rotenone treatment is dependent on the success of the barrier completely eliminating non-native trout movement upstream of this point.

Given the remote nature of the site, it is not likely that public use would increase. The projects would be separated by nearly one year and conducted at times that do not conflict with public hunting seasons. The current non-native trout fishery would be replaced by a native fishery that occupy a similar niche and would provide similar ecological functions and provide for similar angling opportunities. FWP does not foresee any other activities in the drainage that would add to impacts of the proposed actions. As such there are no negative cumulative impacts to non-target organisms related to construction and the treatment of the stream. The restoration would result in a positive cumulative impact in that when combined with other WCT restoration projects, significant progress toward the conservation of these species is being made.

B.HUMAN ENVIRONMENT

6. NOISE/ELECTRICAL EFFECTS Will the proposed action result in:	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Increases in existing noise levels?			X			6a.
b. Exposure of people to serve or nuisance noise levels?		X				
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				

Comment 6a. There would be a short term increase in noise from construction equipment. The barrier construction involves drilling in rock, blasting a barrier in rock with explosives and moving construction materials with diesel powered equipment. Nearly one year later there would be a short term increase in noise from a generator operating a detoxification system for an anticipated 2-4 days. Given the remote location these impacts would be limited mostly to the workers on the site. Hearing protection would be available for workers on site. Noise from drilling, blasting and equipment would be limited to a few days.

Cumulative Impacts: Increases in noise from the proposed action would be short term and minor. The barrier construction and rotenone treatment would be separated by nearly one year. FWP does not expect the proposed action to result in other actions that would create increased noise in the stream or drainage. FWP does not foresee any other activities in the basin that

would add to impacts of the proposed action. As such there are no cumulative impacts related to noise from the barrier construction or rotenone treatment.

7. LAND USE Will the proposed action result in:	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				7a
b. Conflicted with a designated natural area or area of unusual scientific or educational importance?		X				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?			X			See 7c
d. Adverse effects on or relocation of residences?		X				

Comment 7a. The barrier portion of the project is located on public land. No grazing leases are available at this time and none are expected at the time of construction or the rotenone treatment. Portions of the project area associated with the rotenone application are located on BLM and private land. The private landowner holds the grazing lease on the BLM land in section 8. The portion of Wegner Creek drainage that lies in 31, 6, 5, 8 on private and BLM lands are subject to a rotating grazing strategy. The landowner has indicated cattle grazing is not planned for Wegner Creek drainage in 2018. No impacts are expected from removing cattle from the project area.

Comment 7c: During treatment with rotenone, public access to the project areas would be closed for several days to prevent public exposure to rotenone. This is not expected to cause any significant public impact due to the remote nature of the project and the fact that a portion of the project is located on private land with limited public access. The length of the closure would depend on the amount of time the treated stream remained toxic to fish but is not expected to exceed 4 days. The label for CFT Legumine states that detoxification should be terminated when replenished fish survive and show no signs of stress for at least four hours. FWP expects the treated waters to be non-toxic to fish within 24-48 hours after application of rotenone. Therefore, it can reasonably be expected that any closures would last 2 to 4 days total. The treatment would be implemented in late summer (August-September). At proposed levels, stream water would not be toxic to wildlife or livestock. However, to limit any potential conflict, the treatment would be coordinated such that livestock are pastured elsewhere or livestock would be temporarily moved to adjacent pastures during the treatment period if possible.

Cumulative Impacts: Impacts on land use from the proposed action would be short term and minor. FWP does not expect the proposed action to result in other actions that would impact land use in the stream. FWP does not foresee any other activities in the basin that would add to

impacts of the proposed action. As such there are no cumulative impacts related to land use from the treatment of the stream with piscicide or associated barrier construction.

The portion of the project that is located on Sieben Livestock property would be subject to a Candidate Conservation Agreement with Assurances between the landowner and the State of Montana. The purpose of this agreement is to clearly identify that WCT is a species that has been subject to ESA listing attempts and would be added to the project area. Under this agreement the landowner is authorized to take WCT incidental to normal agricultural operations. Other provisions are listed in the agreement. The State has fought attempts to list WCT under ESA and has implemented conservation like the Wegner Creek project specifically to maintain management authority of the species and prevent the need for ESA listing.

8. RISK/HEALTH HAZARDS **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Risk of an explosion or release of hazardous substances (including, but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?			X		YES	8a
b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?			X		YES	8b
c. Creation of any human health hazard or potential hazard?			X		YES	see 8a,c
d. Will any chemical toxicants be used?			X		YES	see 8a

Comment 8a, 8c:

Humans would be exposed to nitroglyceryn explosives during the barrier construction. Precautions would be taken to prohibit public from being near the blast site. Construction workers would be required to use safety equipment necessary for transporting, installing and detonating explosives. Nitroglycerin (glyceryl trinitrate) is also used in the medical field as an anti-anginal vasodilating agent (PIM 1991). The main risks to human exposure is that veinal and arterial vasodilatation causes lowering of blood pressure leading to shock. Nitroglycerin for medical purposes is administered orally. As an explosive it is highly volatile and generally performs with complete detonation. To ensure complete detonation a galvanometer is used to check for connections before and after blasting. If incomplete detonation occurs the blaster can track down the unexploded ordinance and detonate it. Nitroglyceryn is also used in smokeless gunpowder. Humans are exposed to gunpowder and its byproducts regularly. The public would be prevented from entering the blast area by signing and patrolling from FWP employees and construction workers.

Nearly one year later humans would be exposured to CFT Legumine when applying it to the stream to remove fish. All applicators would wear safety equipment required by the product label and MSDS sheets. Such safety equipment may include respirator, goggles, rubber boots

(waders), Tyvek overalls, and Nitrile gloves. All applicators would be trained on the safe handling and application of the piscicide. At least one Montana Department of Agriculture certified pesticide applicator would supervise and administer the project. Materials would be transported, handled, applied and stored according to the label specifications to reduce the probability of human exposure or spill. See also Comment 8c for other review of risks to general public. The public would be prevented from entering the treatment area by signing and patrolling from FWP employees.

Comment 8b: A safety plan would be developed prior to detonating explosives that includes emergency response and first aid.

FWP requires a treatment plan for rotenone projects. This plan addresses many aspects of safety for people who are on the implementation team such as establishing a clear chain of command, training, delegation and assignment of responsibility, clear lines of communication between members, a spill contingency plan, first aid, emergency responder information, personal protective equipment, monitoring and quality control, among others. Implementing this project should not have any impact on existing emergency plans. Because an implementation plan has been developed by FWP the risk of emergency response is minimal and any affects to existing emergency responders would be short term and minor.

Comment 8c, 8a: The EPA (2007) conducted an analysis of the human health risks for rotenone and concluded it has a high acute toxicity for both oral and inhalation routes, but has a low acute toxicity for dermal route of exposure. It is not an eye or skin irritant nor a skin sensitizer. The EPA could not provide a quantitative assessment of potentially critical effect on neurotoxicity risks to rotenone users, so a number of uncertainty factors were assigned to the rating values. They are; an additional 10x database uncertainty factor - in addition to the inter-species (10x) uncertainty factor and intra-species (10x) uncertainty factor – has been applied to protect against potential human health effects and the target margin of exposure (MOE) is 1000. The following table summarizes the EPA toxicological endpoints of rotenone (from EPA 2007);

Exposure Scenario	**Dose Used in Risk Assessment, Uncertainty Factor (UF)**	**Level of Concern for Risk Assessment**	**Study and Toxicological Effects**
Acute Dietary (females 13-49)	NOAEL = 15 mg/kg/day UF = 1000 aRfD = 15 mg/kg/day = 0.015 mg/kg/day 1000	Acute PAD = 0.015 mg/kg/day	Developmental toxicity study in mouse (MRID 00141707, 00145049) LOAEL = 24 mg/kg/day based on increased resorptions
Acute Dietary (all populations)	An appropriate endpoint attributable to a single dose was not identified in the available studies, including the developmental toxicity studies.		
Chronic Dietary (all populations)	NOAEL = 0.375 mg/kg/day UF = 1000 cRfD = 0.375 mg/kg/day = 0.0004 mg/kg/day 1000	Chronic PAD = 0.0004 mg/kg/day	Chronic/oncogenicity study in rat (MRID 00156739, 41657101) LOAEL = 1.9 mg/kg/day based on decreased body weight and food consumption in both

			males and females
Incidental Oral Short-term (1-30 days) Intermediate-term (1-6 months)	NOAEL = 0.5 mg/kg/day	Residential MOE = 1000	Reproductive toxicity study in rat (MRID 00141408) LOAEL = 2.4/3.0 mg/kg/day [M/F] based on decreased parental (male and female) body weight and body weight gain
Dermal Short-, Intermediate-, and Long-Term	NOAEL = 0.5 mg/kg/day 10% dermal absorption factor	Residential MOE = 1000 Worker MOE = 1000	Reproductive toxicity study in rat (MRID 00141408) LOAEL = 2.4/3.0 mg/kg/day
Inhalation Short-term (1-30 days) Intermediate-term (1-6 months)	NOAEL = 0.5 mg/kg/day 100% inhalation absorption factor	Residential MOE = 1000 Worker MOE = 1000	[M/F] based on decreased parental (male and female) body weight and body weight gain
Cancer (oral, dermal, inhalation)	Classification; No evidence of carcinogenicity		

UF = uncertainty factor, NOAEL = no observed adverse effect level, LOAEL = lowest observed adverse effect level, aPAD = acute population adjusted dose, cPAD = chronic population adjusted does, RfD = reference dose, MOE = margin of exposure, NA = Not Applicable

Rotenolenoids are common degradation products found in the parent plant material used to make piscicidal forms of rotenone. The EPA (2007) concluded these degradation products are no more toxic than the active ingredient.

The EPA analysis of acute dietary risk for both food and drinking water concluded;

> *"...When rotenone is used in fish management applications, food exposure may occur when individuals catch and eat fish that either survived the treatment or were added to the water body (restocked) prior to complete degradation. Although exposure from this route is unlikely for the general U.S. population, some people might consume fish following a rotenone application. EPA used maximum residue values from a bioaccumulation study to estimate acute risk from consuming fish from treated water bodies. This estimate is considered conservative because the bioaccumulation study measured total residues in edible portions of fish including certain non-edible portions (skin, scales, and fins) where concentrations may be higher than edible portions (tissue) and the Agency assumed that 100% of fish consumption could come from rotenone exposed fish. In addition, fish are able to detect rotenone's presence in water and, when possible, attempt to avoid the chemical by moving from the treatment area. Thus, for partial kill uses, surviving fish are likely those that have intentionally minimized exposure.*

Acute exposure estimates for drinking water considered surface water only because rotenone is only applied directly to surface water and is not expected to reach groundwater. The estimated drinking water concentration (EDWC) used in dietary exposure estimates was 200 ppb, the solubility limit of rotenone. The drinking water risk assessment is conservative because it assumes water is consumed immediately after treatment with no degradation and no water treatment prior to consumption.
Acute dietary exposure estimates result in dietary risk below the Agency's level of concern. Generally, EPA is concerned when risk estimates exceed 100% of the acute population adjusted dose (aPAD). The exposure for the "females 13-49 years old" subgroup (0.1117 mg/kg/day) utilized 74% of the aPAD (0.015 mg/kg/day) at the 95th percentile (see Table 5). It is appropriate to consider the 95th percentile because the analysis is deterministic and unrefined. Measures implemented as a result of this RED will further minimize potential dietary exposure (see Section IV)..."

As for evaluating the human chronic risk from exposure to rotenone treated water, the EPA acknowledges the four principle reasons for concluding there is a low risk: first, the rapid natural degradation of rotenone, second, using active detoxification measures by applicators such as potassium permanganate, third, properly following piscicide labels and the extra precautions stated in this document and finally, proper signing, public notification or area closures which limit public exposure to rotenone treated water.

As for recreational exposure, the EPA concludes no risk to adults who enter treated water following the application by dermal and incidental ingestion, but requires a waiting period of 3 days after a treatment before toddlers swim in treated water. The aggregate risk to human health from food, water and swimming does not exceed the EPA level of concern (EPA 2007). Recreationists in the area would likely not be exposed to the treatments because treatment areas would be closed to public access. Signs would be in place to warn recreationists that the stream are being treated with rotenone and closed to entry. Proper warning through news releases, signing the project area, temporary road closure and administrative personnel in the project area should be adequate to keep recreationists from being exposed to any treated waters.

Fisher (2007) conducted an analysis of the inert constituent ingredients found in the rotenone formulation of CFT Legumine for the California Department of Fish and Game. These inert ingredients are principally found in the emulsifying agent Fennodefo^{99} which helps make the generally insoluble rotenone more soluble in water. The constituents were considered because of their known hazard status and not because of their concentrations in the Legumine formulation. Solvents such as xylene, trichloroethylene (TCE) and tetrachloroethylene are residue left over from the process of extracting rotenone from the root and can be found in some lots of Legumine. However, inconsistent detectability and low occurrence in other formulations that used the same extraction process were below the levels for human health and ecological risk. Solvents such as toluene, n-butylbenzene, 1,2,4 trimethylbenzene and naphthalene are present in Legumine, and when used in other applications can be an inhalation risk. However, because of their low concentrations in this formulation, the human health risk is low. The remaining constituents, the fatty acid esters, resin acids, glycols, substituted benzenes, and 1-hexanol were likewise present but either analyzed, calculated or estimated to be below the human health risk levels when used in a typical fish eradication project.

Methyl pyrrolidone is also found in Legumine. It is known to have good solvency properties and is used to dissolve a wide range of compounds including resins (rotenone). Analysis of Methyl pyrrolidone in Legumine showed it represents about 9% of the formulation (Fisher 2007). The analysis concluded regarding the constituent ingredients in Legumine;

> "...None of the constituents identified are considered persistent in the environment nor will they bioaccumulate. The trace benzenes identified in the solvent mixture of CFT Legumine™ will exhibit limited volatility and will rapidly degrade through photolytic and biological degradation mechanisms. The PEGs are highly soluble, have very low volatility, and are rapidly biodegraded within a matter of days. The fatty acids in the fatty acid ester mixture (Fennodefo99™) do not exhibit significant volatility, are virtually insoluble, and are readily biodegraded, although likely over a slightly longer period of time than the PEGs in the mixture. None of the new compounds identified exhibit persistence or are known to bioaccumulate. Under conditions that would favor groundwater exchange the highly soluble PEGs could feasibly transmit to groundwater, but the concentrations in the reservoir, and the rapid biodegradation of these constituents makes this scenario extremely unlikely. Based upon a review of the physicalchemistry of the chemicals identified, we conclude that they are rapidly biodegraded, hydrolyzed and/or otherwise photolytically oxidized and that the chemicals pose no additional risk to human health or ecological receptors from those identified in the earlier analysis. None of the constituents identified appear to be at concentrations that suggest human health risks through water, or ingestion exposure scenarios and no relevant regulatory criteria are exceeded in estimated exposure concentrations..."

The Legumine MSDS states "...when working with an undiluted product in a confined space, use a non-powered air purifying respirator...and... air-purifying respirators do not protect workers in oxygen-deficient atmospheres..." It is not likely that workers would be handling Legumine in an oxygen deficient space during normal use. However, to guard against this, proper ventilation and safety equipment would be used according to the label requirements.

In their description of how South American Indians prepare and apply *Timbó*, a rotenone parent plant, Teixeira, et al. (1984) reported that the Indians extensively handled the plants during a mastication process, and then swam in lagoons to distribute the plant pulp. No harmful effects were reported. It is important to note that the primitive method of applying rotenone from root does not involve a calculated target concentration, metering devices or involve human health risk precautions as those involved with fisheries management programs.

One study, in which rats were injected with rotenone for a period of weeks, reported finding lesions characteristic of Parkinson's disease (Betarbet et al. 2000). However, the relevance of the results to the use of rotenone as a piscicide have been challenged based upon the following dissimilarities between the experimental methodology used and fisheries related applications: (1) the continuous intravenous injection method used to treat the rats leads to "continuously high levels of the compound in the blood," unlike field applications where 1) the oral route is the most likely method of exposure, 2) a much lower dose is used and 3) potential exposure to rotenone is limited to usually only a matter of days because of the rapid breakdown of the rotenone

following application. Further, dimethyl sulfoxide (DMSO) was used to enhance tissue penetration in the laboratory experiment (normal routes of exposure actually slow introduction of chemicals into the bloodstream), no such chemicals enhancing tissue penetration are present in the rotenone formulation proposed for use in this treatment. Similar studies (Marking 1988) have found no Parkinson-like results. Extensive research has demonstrated that rotenone does not cause birth defects (HRI 1982), gene mutations (Van Geothem et al. 1981; BRL 1982) or cancer (Marking 1988). Rotenone was found to have no direct role in fetal development of rats that were fed high concentrations of rotenone. Spencer and Sing (1982) reported that rats that were fed diets laced with 10-1,000 ppm rotenone over a 10 day period did not suffer any reproductive dysfunction. Typical concentrations of actual rotenone used in fishery management range from 0.025 to 0.50 ppb and are far below that administered during most toxicology studies.

A recent study linked the use of rotenone and paraquat with the development of Parkinson's disease in humans later in life (Tanner et al. 2011). The after the fact study included mostly farmers from 2 states within the United States who presumably used rotenone for terrestrial application to crops and/or livestock. Rotenone is no longer approved for agricultural uses and is only approved for aquatic application as a piscicide. The results of epidemiological studies of pesticide exposure, such as this one have been highly variable (Guenther et al. 2011). Studies have found no correlations between pesticide exposure and PD (e.g., Jiménez-Jiménez 1992; Hertzman 1994; Engel et al. 2001; Firestone et al. 2010), some have found correlations between pesticide exposure and PD (e.g., Hubble et al. 1993; Lai et al. 2002; Tanner et al. 2011) and some have found it difficult determine which pesticide or pesticide class is implicated if associations with PD occur (e.g., Engel et al. 2001; Tanner et al. 2009). Recently, epidemiological studies linking pesticide exposure to PD have been criticized due to the high variation among study results, generic categorization of pesticide exposure scenarios, questionnaire subjectivity, and the difficulty in evaluating the causal factors in the complex disease of PD, which may have multiple causal factors (age, genetics, environment) (Raffaele et al. 2011). A specific concern is the inability to assess the degree of exposure to certain chemicals, including rotenone, particularly the concentration of the chemical, frequency of use, application (e.g., agricultural, insect removal from pets), and exposure routes (Raffaele et al. 2011). No information is given in the Tanner et al. (2011) study about the formulation of rotenone used (powder or liquid) or the frequency or dose farmers were exposed to during their careers. There is also no information given about the personal protective equipment used or any information about other pesticides farmers were exposed to during the period of the study. It is also unclear in the Tanner et al. (2011) study the frequency and the dose individuals were exposed to during the time period of use. Without information on how much rotenone individuals were exposed to and for how long, it is difficult to evaluate the potential risk to humans of developing Parkinson's disease from aquatic applications of rotenone products.

The state of Arizona conducted an exhaustive review to the risks to human health of rotenone use as a piscicide (Guenther et al. 2011). They concluded: "To date, there are no published studies that conclusively link exposure to rotenone and the development of clinically diagnosed PD. Some correlation studies have found a higher incidence of PD with exposure to pesticides among other factors, and some have not. It is very important to note that in case-control correlation studies, causal relationships cannot be assumed and some associations identified in odds-ratio analyses may be chance associations. Only one study (Tanner et al. 2011) found an association between rotenone and paraquat use and PD in agricultural workers, primarily farmers. However, there are substantial differences between the methods of application, formulation, and doses of rotenone used in

agriculture and residential settings compared with aquatic use as a piscicide, and the agricultural workers interviewed were also exposed to many other pesticides during their careers. Through the EPA reregistration process of rotenone, occupational exposure risk is minimized by: new requirements that state handlers may only apply rotenone at less than the maximum treatment concentrations (200 ppb), the development of engineering controls to some of the rotenone dispensing equipment, and requiring handlers to wear specific PPE."

As such, to reduce or eliminate the risk to human health, including any potential risk of developing Parkinson's disease, public exposure to rotenone treated water must be eliminated to the extent possible. To reduce the potential for exposure of the public during the proposed use of CFT Legumine to restore WCT, areas treated with rotenone would be closed to public access during the treatment. Signs would be placed at access points informing the public of the closure and the presence rotenone treated waters. Personnel would be onsite to inform the public and escort them from the treatment area should they enter. Rotenone treated waters would be contained to the treatment areas by adding potassium permanganate to the stream at the downstream end of the treatment reach (fish barrier). Potassium permanganate would neutralize any remaining rotenone before leaving the project area. The efficacy of the neutralization would be monitored using fish (the most sensitive species to the chemical) and a hand held chlorine meter. Therefore, the potential for public exposure to rotenone treated waters is very minimal. The potential for exposure would be greatest for those government workers applying the chemical. To reduce their exposure, all CFT Legumine label requires that personal protective equipment be used (see Comment 8a).

The development of a 5 foot tall waterfall could create a physical hazard to a person walking in the stream. However, this type of physical feature is common in nature and the risks would likely not be any greater here that in a location where a natural waterfall is present. It would be possible for humans to walk around the waterfall.

Cumulative Impacts: Health hazards from the barrier construction and the rotenone application would be short term and mitigated through closure of construction and treatment areas to public and use of proper safety equipment, etc. The barrier construction and rotenone treatment are connected actions but cumulative impacts would be mitigated by separating the actions by nearly one year. The success of the rotenone treatment is dependent on the success of the barrier completely eliminating non-native trout movement upstream of this point.

Because rotenone in all formulations including CFT Legumine breaks down quickly and does not bioaccumulate, there should be no long-term or cumulative impacts of the application of the piscicide. FWP does not expect the proposed action to result in other actions that would increase the risk of health hazards in the stream. We do not foresee any other activities in the basin that would add to health impacts of the proposed action. As such there are no cumulative impacts related health hazards from the proposed treatments.

9. COMMUNITY IMPACT **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Alteration of the location, distribution,		X				

density, or growth rate of the human population of an area?						
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?		X				
d. Changes in industrial or commercial activity?		X				
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				

10. PUBLIC SERVICES/TAXES/UTILITIES **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Will the proposed action have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify:		X				
b. Will the proposed action have an effect upon the local or state tax base and revenues?		X				
c. Will the proposed action result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				
d. Will the proposed action result in increased used of any energy source?		X				
e. Define projected revenue sources		X				
f. Define projected maintenance costs		X				

11. AESTHETICS/RECREATION Will the proposed action result in:	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?		X				
b. Alteration of the aesthetic character of a community or neighborhood?		X				
c. Alteration of the quality or quantity of recreational/tourism opportunities and settings? (Attach Tourism Report)			X			11c
d. Will any designated or proposed wild or scenic rivers, trails or wilderness areas be impacted? (Also see 11a, 11c)		X				

Comment 11c: There would be a temporary loss of angling opportunity in Wegner Creek for multiple years as the cutthroat trout repopulate the stream. The stream is seasonally accessible to the public mostly on lands administered by Montana FWP. However, once WCT are established and reproducing, they should provide the same angling opportunities as the current trout fishery. In the central fishing district anglers are allowed to harvest one WCT in their bag limit on rivers and streams. There would be a reduction in the number of trout an angler could harvest/possess above the barrier site. This would be a long term impact, but considered to be minor because of the remote nature of the fishery, likely low amount of public use and this is a common regulation in the central fishing district. Anglers would be able to harvest a full legal complement of trout downstream of the barrier which is consistent with existing regulations for those species.

Cumulative Impacts: Impacts to recreation and aesthetics from the proposed action would be short term and minor. FWP does not expect the proposed action to result in other actions that would impact recreation/aesthetics on this stream. FWP does not foresee any other activities in the basin that would add to impacts of the proposed action. As such there are no cumulative impacts to recreation/aesthetics from the proposed action.

12. 12/HISTORICAL RESOURCES Will the proposed action result in:	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Destruction or alteration of any site, structure or object of prehistoric historic, or paleontological importance?		X				
b. Physical change that would affect unique cultural values?		X				
c. Effects on existing religious or sacred uses of a site or area?		X				12c
d. Will the project affect historic or cultural resources?		X				

Comment 12c. In October 1999 the Montana Department of Natural Resources and Conservation issued a Finding for the Environmental Assessment of the Timber Sale at Whitetail Prairie T15N, R2W, S36 and determined no historic or archaeological sites were identified in the project area. The area analyzed in that survey covers the proposed project area. Additionally, a cultural survey was conducted by Legacy Consulting in May2017 for the ground breaking activities proposed at the barrier site. Those results are pending.

13. SUMMARY EVALUATION OF SIGNIFICANCE **Will the proposed action, considered as a whole:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources which create a significant effect when considered together or in total.)		X				
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?		X				
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		X				
e. Generate substantial debate or controversy about the nature of the impacts that would be created?			X		Yes	13e
f. Is the project expected to have organized opposition or generate substantial public controversy? (Also see 13e)			X			13f
g. List any federal or state permits required.						13g

Comments 13e and f: The use of piscicide can generate controversy. Public outreach and information programs can inform the public on the use of pesticides and the impacts and risks associated with its use. It is not known if this project would have organized opposition. Similar projects proposed and implemented from 2010-2015 had limited opposition.

Comment 13g: The following permits would be required:

MDEQ Pesticide General Permit
MFWP Montana Stream Protection Act 124 permit
MDEQ Short Term Exemption of Surface Water Quality Standards 318 permit

PART IV. OVERLAPPING AGENCY JURISDICTION

A. Name of Agency and Responsibility
   a. Montana Department of Environmental Quality – NDPES Discharge Permit for application of CFT Legumine and 318 permit
   b. Bureau of Land Management for land management, including grazing management, and temporary closure of areas on BLM land during rotenone application.

PART V. AGENCIES THAT HAVE CONTRIBUTED OR BEEN CONTACTED

A. Name of Agency

   a. Montana Department of Environmental Quality.
   b. Montana Department of Fish, Wildlife & Parks – wildlife bureau
   c. Montana Natural Heritage
   d. BLM

PART VI. ENVIRONMENTAL IMPACT STATEMENT REQUIRED?

After considering the potential impacts of the proposed action and possible mitigation measures, FWP has determined that an Environmental Impact Statement is not warranted. The impacts of native fish restoration as described in this document are minor and/or temporary and mitigation for many of the impacts is possible. The primary negative impacts as a result of this project are possible temporary reductions in aquatic invertebrate abundance. Impacts to aquatic invertebrates have been shown to be short term (1-2 years) and minor and invertebrate communities are very resilient to disturbances such as treatment with rotenone. Mitigation measures such as neutralization of rotenone should reduce the impacts to aquatic insects. Further, the benefit to native WCT for conservation, would balance the potential short term negative impacts to other species.

Prepared by : Jason Mullen and Grant Grisak Date: May 5, 2017

Submit written comments to: Montana Fish, Wildlife & Parks
c/o Wegner Creek fish conservation project
4600 Giant Springs Road

Great Falls, MT 59405

Comment period is _30_ days. Comments must be received by ___June 5, 2017_____

PART V. REFERENCES

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